

GEPHE SUMMARY

Gephebase Gene		GepheID
Frigida (FRI) (https://www.gephebase.org/search-criteria?/and+Gene+Gephebase=~Frigida+(FRI)^#gephebase-summary-title)	GP00000366	
Entry Status	Courtier	Main curator
Published		

PHENOTYPIC CHANGE

Trait Category			
Physiology (https://www.gephebase.org/search-criteria?/and+Trait+Category=~Physiology^#gephebase-summary-title)		Trait	
Flowering time (https://www.gephebase.org/search-criteria?/and+Trait=~Flowering+time^#gephebase-summary-title)		Trait State in Taxon A	
Arabidopsis thaliana- H51		Trait State in Taxon B	
Arabidopsis thaliana- Co		Ancestral State	
Taxon A		Taxonomic Status	
Intraspecific (https://www.gephebase.org/search-criteria?/and+Taxonomic+Status=~Intraspecific^#gephebase-summary-title)			
Taxon A		Taxon B	
Arabidopsis thaliana (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Arabidopsis+thaliana^#gephebase-summary-title)		Arabidopsis thaliana (https://www.gephebase.org/search-criteria?/and+Taxon+and+Synonyms=~Arabidopsis+thaliana^#gephebase-summary-title)	
Common Name		Common Name	
thale cress		thale cress	
Synonyms		Synonyms	
thale cress; mouse-ear cress; thale-cress; Arabidopsis thaliana (L.) Heynh.; Arabidopsis thaliana (thale cress); Arabidopsis_thaliana; Arbisopsis thaliana; thale kress		thale cress; mouse-ear cress; thale-cress; Arabidopsis thaliana (L.) Heynh.; Arabidopsis thaliana (thale cress); Arabidopsis_thaliana; Arbisopsis thaliana; thale kress	
Rank		Rank	
species		species	
Lineage		Lineage	
cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetales; rosids; malvids; Brassicales; Brassicaceae; Camelineae; Arabidopsis		cellular organisms; Eukaryota; Viridiplantae; Streptophyta; Streptophytina; Embryophyta; Tracheophyta; Euphyllophyta; Spermatophyta; Magnoliophyta; Mesangiospermae; eudicotyledons; Gunneridae; Pentapetales; rosids; malvids; Brassicales; Brassicaceae; Camelineae; Arabidopsis	
Parent		Parent	
Arabidopsis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3701)		Arabidopsis () - (Rank: genus) (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3701)	
NCBI Taxonomy ID		NCBI Taxonomy ID	
3702 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3702)		3702 (https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=3702)	
is Taxon A an Intraspecies?		is Taxon B an Intraspecies?	
Yes		Yes	
Taxon A Description		Taxon B Description	
Arabidopsis thaliana- H51		Arabidopsis thaliana- Co	

GENOTYPIC CHANGE

Generic Gene Name		UniProtKB Arabidopsis thaliana
FRI		P0DH90 (http://www.uniprot.org/uniprot/P0DH90)
Synonyms		GenebankID or UniProtKB
-		AF228500 (https://www.ncbi.nlm.nih.gov/nucleotide/AF228500)
String		
-		
Sequence Similarities		
Belongs to the Frigida family.		
GO - Molecular Function		
-		
GO - Biological Process		
GO:0030154 : cell differentiation (https://www.ebi.ac.uk/QuickGO/term/GO:0030154)		
GO:0009908 : flower development (https://www.ebi.ac.uk/QuickGO/term/GO:0009908)		
GO - Cellular Component		
GO:0016607 : nuclear speck (https://www.ebi.ac.uk/QuickGO/term/GO:0016607)		

Yes (#gephebase-summary-title)	Presumptive Null
Coding (#gephebase-summary-title)	Molecular Type
Deletion (#gephebase-summary-title)	Aberration Type
10-99 bp	Deletion Size
deletion; E430*	Molecular Details of the Mutation
Candidate Gene (#gephebase-summary-title)	Experimental Evidence
Role of FRIGIDA and FLOWERING LOCUS C in determining variation in flowering time of Arabidopsis. (2005) (https://pubmed.ncbi.nlm.nih.gov/15908596)	Main Reference
Shindo C; Aranzana MJ; Lister C; Baxter C; Nicholls C; Nordborg M; Dean C	Authors
Arabidopsis (<i>Arabidopsis thaliana</i>) accessions provide an excellent resource to dissect the molecular basis of adaptation. We have selected 192 Arabidopsis accessions collected to represent worldwide and local variation and analyzed two adaptively important traits, flowering time and vernalization response. There was huge variation in the flowering habit of the different accessions, with no simple relationship to latitude of collection site and considerable diversity occurring within local regions. We explored the contribution to this variation from the two genes FRIGIDA (FRI) and FLOWERING LOCUS C (FLC), previously shown to be important determinants in natural variation of flowering time. A correlation of FLC expression with flowering time and vernalization was observed, but it was not as strong as anticipated due to many late-flowering/vernalization-requiring accessions being associated with low FLC expression and early-flowering accessions with high FLC expression. Sequence analysis of FRI revealed which accessions were likely to carry functional alleles, and, from comparison of flowering time with allelic type, we estimate that approximately 70% of flowering time variation can be accounted for by allelic variation of FRI. The maintenance and propagation of 20 independent nonfunctional FRI haplotypes suggest that the loss-of-function mutations can confer a strong selective advantage. Accessions with a common FRI haplotype were, in some cases, associated with very different FLC levels and wide variation in flowering time, suggesting additional variation at FLC itself or other genes regulating FLC. These data reveal how useful these Arabidopsis accessions will be in dissecting the complex molecular variation that has led to the adaptive phenotypic variation in flowering time.	Abstract
	Additional References

RELATED GEPHE

12 (AGAMOUS-LIKE 50, Cryptochrome 2 (CRY2) EDI allele, EARLY FLOWERING 3(ELF3), FLC (Flowering Locus C), FLM (MAF1), Flowering locus T (FT), Frigida like 1 (FRL1), Frigida like 2 (FRL2), MADS AFFECTING FLOWERING 2 (MAF2), SVP (SHORT VEGETATIVE PHASE), VIN3, HUA2) (https://www.gephebase.org/search-criteria?/or+Taxon ID=~3702#/and+Trait=Flowering time/and+groupHaplotypes=true#gephebase-summary-title)	Related Genes
18 (#gephebase-summary-title)	Related Haplotypes

EXTERNAL LINKS

COMMENTS